ZINGA VS METALLISATION

ZINGA	Performance	Metallisation
Offers a cathodic protection throughout the layer, comparable to the cathodic protection of hot dip galvanising (*Prof. Defrancq - University of Ghent*).	**Active Protection**	Offers a cathodic protection throughout the layer.
A layer of zinc salts slowly builds up on the ZINGA surface. This creates a barrier protection for the metal substrate. Next to this, a supplementary barrier protection is provided by the binder in ZINGA. The binder reduces the disintegration of the zinc.	**Passive Protection**	The 100 % zinc in the thermal zinc spray system is a naked zinc, without the barrier protection of the zinc particles in ZINGA.
Does not need a topcoat. A single layer of ZINGA is in itself a Duplex system offering on one side an ACTIVE-CATHODIC protection, on the other side a PASSIVE-BARRIER protection.	**Unique System**	Has porosities and the zinc in a metallisation layer is a naked zinc, therefore it is necessary to apply a stabilisation coating before applying one or two topcoats.
ZINGA containing 96 % of zinc remains a flexible layer, and resists to mechanical shocks by being compressed. There is no risk of disbonding (not even around the impact) within a multiple layer of ZINGA. It will never show adhesion failures. Even on thin metal ZINGA remains always the same flexible layer.	**Flexibility and Brittleness**	The probability exists that abrasion and/or impact (e.g. road debris), due to the brittleness of thermal spray coatings, results in a high incidence chipping and crack propagation, thereby undermining the integrity of the coating surface. Excessive cracking, at any DFT, when applied to thin/flexible metal surfaces. As a result, the thermal zinc spray flakes off and/or cracks due to metal surface flexure, thereby undermining the integrity of the coating coverage.
ZINGA will not break down at sharp corners due to its flexibility.	**Sharp corners**	Thermal spray coatings tend to break down at sharp corners creating target corrosion sites.
A polymerised ZINGA layer will re-liquidise upon contact with ZINGA, even after 20 years.	**Reloading**	After application, the zinc will not re-liquidise upon contact with a new layer.
	Application	
ZINGA is applied on a clean and rough surface to be obtained by a blasting Sa 2 ½, 12.5 µm with the right blasting material. A complete cleaning to the white metal is not required, a certain degree of adhering rust can be accepted, it will even increase the binding of the ZINGA to the metal surface.	**Surface Preparation**	The Thermal Spray process requires an extremely clean white blast metal surface (Sa 3) for a proper binding 0integrity. Extreme and absolute dry surface is required. Fully cleaned surfaces are critical to the Thermal Spray process. Moreover, white cleaning is difficult to obtain over large surface areas. The clean white metal grit blast process (to SSPC-SP-5) can also produce component distortion. Conventionally it is advised to use the Thermal Spray within 30 minutes in the open air and within 6 hours in covered areas.
A ZINGA-coating can be applied everywhere under normal conditions, regardless of temperature and humidity. It does not require highly qualified personnel.	**Work Force**	Thermal Spray coatings are very labour intensive and have to be performed by highly trained technicians in a workshop.

ZINGA can be applied in a complete automatic unit by spraying or dipping.	**Automatisation**	Thermal Spray cannot be applied automatically.
ZINGA can be applied in humid circumstances and this will accelerate and improve the polymerisation of the ZINGA layer.	**Humidity**	There is a poor Thermal Spray application consistency due to the sensitivity to humidity of the Thermal Spray compound. Specifically, during application, flow from the nozzle to the vehicle surface the Thermal Spray Aluminium can experience a chemical reaction causing application of a dual material compound (aluminium and aluminium oxide), instead of exclusively Aluminium. The aluminium oxide is highly prone to chipping which results in the forming of voids and defects in the applied coating.
The most economic and easiest way to apply ZINGA is by dipping. Internal surfaces of the components can be treated by dipping without the need of de-gazing : ZINGA is always applied at ambient temperature.	**Internal coating**	It is impossible to coat internal surfaces by Thermal Spraying. (e.g. most notable vehicle components, not readily accessible unless fully disassembled).
ZINGA is not restricted regarding time laps between surface preparation and application. ZINGA can even be applied on blow oxidation.	**Time Laps in Applications**	The Thermal Spray process is demanding and difficult to control in mass production (e.g. mass vehicle production) environment versus component work or smaller quantities. This is primarily due to the necessity to apply the Thermal Spray compound immediately after surface cleaning and preparation, because even minimal post-cleaning contamination on the metal surface will undermine the integrity of the Thermal Spray application.
The film thickness can easily be measured (wet and/or dry) so that the dry layer thickness will be close to the required (uniform) thickness.	**Film Thickness Control**	The Thermal Spray application process is difficult to control regarding thickness uniformity over large areas. This is particularly true for lower thickness levels
Welding on ZINGA is possible, once the welding is finished, roughened and cleaned, a new ZINGA layer over the welding will provide an all over protection.	**Welding areas**	Metallisation should be avoided at least to 5 cm from the welding areas, this in order not to influence the quality of the welds by zinc.
ZINGA can be repaired and reloaded at any time. The old ZINGA surface should be clean of dust and loose rust. After a certain time repairs become invisible.	**Repair**	Thermal coatings are very difficult to repair. A blasting or grinding of the surface would be required and the application of the repair layer must be executed very carefully. Repairs will remain visible.
	General	
The cost price of ZINGA is comparible to the price of other protective coatings. The application costs will be relatively low.	**Cost Price**	Comparing the same thickness, Metallisation is about 30 to 40% more expensive than Zinganisation. This is if only the product and application cost are considered, all superior qualities of zinganisation left unconsidered.
Atmospheric: 5.5 – 12.5 Immersion: 5.5 – 9.0	**pH Limitations**	Atmospheric: 5.5 – 9.0 Immersion: 5.5 – 9.0